

N^o 2290



A.D. 1904

Date of Application, 29th Jan., 1904

Complete Specification Left, 29th Oct., 1904—Accepted, 1st Dec., 1904

PROVISIONAL SPECIFICATION.

“Improvements in or relating to Lethal Chambers for the Destruction of Animals.”

We, BERTRAM RICHARDSON, Sculptor, of 52, Oxford Road, Kilburn, in the County of Middlesex, and JOHN CARLTON HUNTING, Advertising Contractor, of 13, Finchley Road, in the County of Middlesex, do hereby declare the nature of this invention to be as follows;—

5 This invention relates to lethal chambers for the destruction of animals and has for its object to enable this to be effected in a painless manner, the apparatus being of a handy and portable type.

According to this invention a chamber of suitable dimensions is provided with doors or openings of convenient type, which will allow the chamber to be
10 hermetically closed, while enabling access to be readily had to the interior for the insertion or removal of the animals under treatment.

A pump, blower, or the like is combined with suitable pipe connections and a receptacle for an anæsthetic or lethal substance so that the vapour of this substance can be circulated through the chamber, the continuous circulation causing the fumes within the chamber to gradually increase in strength.
15

When, by means of the anæsthetic or the like thus introduced, the animals to be treated have been reduced to a state of unconsciousness, the operation of the pump is ceased and carbonic acid gas is introduced into the chamber, or other means taken to effect the death of the animals while in the unconscious state.
20 Conveniently a cylinder of carbonic acid gas is placed in communication with the chamber, the gas being led through a meter of some type which will allow of measurement being taken of the quantity of gas used.

After the death of the animals, by asphyxiation or otherwise, has been effected, the pump is put into operation, the connections having been altered, so as to
25 cause fresh air to be introduced to the lethal chamber and the fumes and gas contained therein withdrawn and discharged into the atmosphere or elsewhere as found convenient.

The chamber is constructed with walls preferably panelled with glass or the like which will admit a certain amount of light and the whole chamber may be
30 arranged in some form convenient for transportation, if desired, though obviously it may be arranged as a fixture, if necessary.

Within the chamber are disposed one or more trays which rest upon the floor or on suitable shelves, these trays being adapted to receive the animals to be treated. The trays are provided with supports which raise them off the floor,
35 or the shelves on which they rest, so that the fumes and gas which are introduced in the upper part of the chamber may circulate freely around the trays and their contents. The trays may be a loose fit in the chamber or may lie closely against the side walls, having openings in their edges to allow for the circulation of the fumes and gas. Preferably the trays have flanged upturned
40 edges in which these circulating openings may be formed.

Where shelves are employed these may be arranged to be fixed at varying heights as found convenient and each shelf is provided with one or more openings for the passage of the fumes and gas, these openings being conveniently disposed at or about the centre of the shelf.

Improvements in Lethal Chambers for the Destruction of Animals.

It will thus be seen that the animals under treatment are so held in the trays that the fumes and gas can freely circulate around them.

The pipe for introducing the anæsthetic fumes is conveniently introduced about the centre of the top of the chamber, but if desired this pipe may have various branches so that the fumes may enter at different points of the chamber, 5 either in the top only or also in the sides. Similarly the carbonic acid gas, or whatever may be employed for the final destruction of the animals, is introduced at convenient points in the chamber. The pipe or pipes by which the fumes and gases are withdrawn from the chamber lead away from the base, the chamber 10 itself being preferably mounted on a stand or on legs or wheels so as to leave the base clear.

A pressure indicator and safety-valve or the like may be provided to show the pressure of gas in the chamber and to prevent this pressure exceeding desired limits.

The chamber is provided conveniently with doors at each end and these doors 15 may be double the inner one having bars and if desired made in two or more portions to correspond with the number of shelves in the chamber. In order to ensure the main outer doors being gas-tight they may be closed by means of screws and provided with packed edges or otherwise constructed as found desirable. 20

In some cases where it is desirable to place an animal to be treated in a cage before putting the animal into the lethal chamber, small cages may be employed which will lie on the trays in the chamber, or a large cage may be utilised which will fill the whole of the chamber.

A simple and convenient construction of pump is to employ one in the double 25 bellows form adapted to be operated by hand. A two-way cock may be utilised to alter the circulation so as to disconnect the vapour-introducing apparatus and put the pump into communication with the atmosphere. When the clearing process is in progress fresh air may be drawn into the chamber through a non-return valve or through openings controlled by cocks. 30

With the above described apparatus it will be seen that the chamber can easily be kept clean since the animals must always lie in the trays which are easily removed and cleansed. Further the introduction of anæsthetic is gradual and consequently unnoticed by the animals since the strength of the fumes gets stronger by degrees owing to the circulation of the air contained in the chamber 35 and the exhalations of the animals themselves.

Further, after the animals are unconscious the final destruction can be effected in a simple manner, and by means of the pressure regulator and the gas meter no waste of gas need occur.

Finally by withdrawing the gases with the aid of the pump and the introduc- 40 tion of fresh air the operators are not brought in contact with the fumes and gas, the chamber being practically filled only with fresh air when opened for the removal of the bodies.

It will be understood that any known apparatus for causing the air introduced to take up the anæsthetic vapour may be employed. Also, the shape and detail 45 construction of the chamber may vary in accordance with requirements, the openings, for example, being made either at the side, top, or elsewhere as found convenient.

The shelves within the chamber may be constructed of openwork metal or of wood and known forms of adjustment for altering their height may be employed. 50

Dated this 29th day of January 1904.

BOULT, WADE, & KILBURN,
Agents for the Applicants.

Improvements in Lethal Chambers for the Destruction of Animals.

COMPLETE SPECIFICATION.

“Improvements in or relating to Lethal Chambers for the Destruction of Animals ”

We, BERTRAM RICHARDSON, Sculptor, of 52 Oxford Road, Kilburn, in the County of Middlesex, and JOHN CARLTON HUNTING, Advertising Contractor, of 13 Finchley Road, in the County of Middlesex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly
5 described and ascertained in and by the following statement;

This invention relates to lethal chambers for the destruction of animals and has for its object to enable this to be effected in a painless manner, the apparatus being of a handy and portable type.

According to this invention a chamber of suitable dimensions is provided with
10 doors or openings of convenient type, which will allow the chamber to be hermetically closed, while enabling access to be readily had to the interior for the insertion or removal of the animals under treatment.

A pump, blower, or the like is combined with suitable pipe connections and a receptacle for an anæsthetic or lethal substance so that the vapour of this sub-
15 stance can be circulated through the chamber, the continuous circulation causing the fumes within the chamber to gradually increase in strength.

When, by means of the anæsthetic or the like thus introduced, the animals to be treated have been reduced to a state of unconsciousness, the operation of the pump is ceased and carbonic acid gas is introduced into the chamber, or other
20 means taken to effect the death of the animals while in the unconscious state. Conveniently a cylinder of carbonic acid gas is placed in communication with the chamber, the gas being led through a meter of some type which will allow of measurement being taken of the quantity of gas used.

After the death of the animals, by asphyxiation or otherwise, has been effected,
25 the pump is put into operation, the connections having been altered, so as to cause fresh air to be introduced to the lethal chamber and the fumes and gas contained therein withdrawn and discharged into the atmosphere or elsewhere as found convenient.

The chamber is constructed with walls preferably panelled with glass or the
30 like which will admit a certain amount of light and the whole chamber may be arranged in some form convenient for transportation, if desired, though obviously it may be arranged as a fixture, if necessary.

Within the chamber are disposed one or more trays which rest upon the floor or on suitable shelves, these trays being adapted to receive the animals to be
35 treated. The trays are provided with supports which raise them off the floor, or the shelves on which they rest, so that the fumes and gas which are introduced in the upper part of the chamber may circulate freely around the trays and their contents. The trays may be a loose fit in the chamber or may lie closely against the side walls, having openings in their edges to allow for the
40 circulation of the fumes and gas. Preferably the trays have flanged upturned edges in which these circulating openings may be formed.

Where shelves are employed these may be arranged to be fixed at varying heights as found convenient and each shelf is provided with one or more open-
45 ings for the passage of the fumes and gas, these openings being conveniently disposed at or about the centre of the shelf.

It will thus be seen that the animals under treatment are so held in the trays that the fumes and gas can freely circulate around them.

Improvements in Lethal Chambers for the Destruction of Animals.

The pipe for introducing the anæsthetic fumes is conveniently introduced about the centre of the top of the chamber, but if desired this pipe may have various branches so that the fumes may enter at different points of the chamber, either in the top only or also in the sides. Similarly the carbonic acid gas, or whatever may be employed for the final destruction of the animals, is introduced at convenient points in the chamber. The pipe or pipes by which the fumes and gases are withdrawn from the chamber lead away from the base, the chamber itself being preferably mounted on a stand or on legs or wheels so as to leave the base clear.

A pressure indicator and safety-valve or the like may be provided to show the pressure of gas in the chamber and to prevent this pressure exceeding desired limits.

The chamber is provided conveniently with doors at each end and these doors may be double the inner one having bars and if desired made in two or more portions to correspond with the number of shelves in the chamber. In order to ensure the main outer doors being gas-tight they may be closed by means of screws and provided with packed edges or otherwise constructed as found desirable.

In some cases where it is desirable to place an animal to be treated in a cage before putting the animal into the lethal chamber, small cages may be employed which will lie on the trays in the chamber, or a large cage may be utilised which will fill the whole of the chamber.

A simple and convenient construction of pump is to employ one in the double bellows form adapted to be operated by hand. A two-way cock may be utilised to alter the circulation so as to disconnect the vapour-introducing apparatus and put the pump into communication with the atmosphere. When the clearing process is in progress fresh air may be drawn into the chamber through a non-return valve or through openings controlled by cocks.

In the accompanying drawings—

Figure 1 is a perspective view of one construction of lethal chamber according to this invention,

Figure 2 is a longitudinal section of the chamber,

Figure 3 is an inverted plan of a tray for use in the lethal chamber.

Figure 4 is a vertical section of a detail.

Figure 5 is a similar view taken on the line 5^a—5^a of Figure 4, and

Figure 6 is a plan of the same.

Like letters indicate like parts throughout the drawings.

A lethal chamber A is provided at each end with inner openwork doors B and outer gas tight doors C. Outlet pipes E connect an outlet port A¹ (see Figure 2) in the floor of the chamber A with bellows F—preferably of the double acting type—which can also be put into communication with the inlet port A² of the chamber through connecting pipes G G¹, a jar H containing an anæsthetic substance, and an inlet pipe G². The pipe G¹ preferably extends almost to the bottom of the jar H, while the pipe G² only projects a short distance below the cover H¹ of the jar. The anæsthetic substance is introduced into the jar H through an inlet H² provided with a stopper.

An exhaust pipe J branches from the pipe G and is controlled by a cock or valve illustrated in detail by Figures 4, 5 and 6 of the accompanying drawings. The said cock or valve comprises a bifurcated casing L communicating at its lower end with the pipe G, and at its upper end its two branches are connected with the pipes G¹ and J, the passages to which are controlled by a valve plug L¹ pierced by two passages at right angles to each other, so that when the passage from the pipe G to the pipe J is open, communication from the pipes G to G¹ is cut off, as shown in Figure 4. The plug L¹ is operated by a handle L³. A horizontal passage L² in the valve casing leads to an aperture A³ in the wall of the chamber A and the plug L¹ controls this passage L² and opens the interior

Improvements in Lethal Chambers for the Destruction of Animals.

of the chamber to the atmosphere whenever the pipe G is open to the exhaust pipe J and closed to the pipe G¹. This position is shown in Figures 4 and 5.

5 The interior of the chamber A is fitted with a perforated shelf N supported by runners N¹. Several pairs of runners N¹ are provided to enable the position of the shelf to be varied. Trays P formed with upwardly projecting flanges P¹ rest upon the shelf and floor of the chamber A and have grooves P² leading to apertures P³ formed approximately in the centre of the bottom of each tray as illustrated particularly in Figure 3 of the drawings. The grooves P² and apertures P³ allow the fumes or gas to circulate freely around the trays.

10 R is a cylinder containing carbonic acid gas which is led through a meter R¹ by a pipe R² and thence by a pipe R³ to inlet ports opening into the chamber at various points.

A safety valve A⁴ is provided in connection with the chamber A to prevent excessive pressure therein.

15 To cause the outer doors C to fit their frames in a gas-tight manner, the latter are grooved as at A⁵ and strips of rubber or other elastic material are fitted within the grooves, into which latter beads C¹ of the doors C tightly engage.

The inner open-work wire doors C are made in sections corresponding to the divisions of the chamber A made by the shelf N.

20 The chamber A is provided with doors at each end for the purpose of facilitating the leading of large animals into the chamber, and the filling of the latter with small animals.

The apparatus is operated as follows—

25 The animals to be treated are placed in the trays and reduced to a state of unconsciousness by operating the bellows F into which the gaseous contents of the chamber A are exhausted through the pipes E and then passed by way of the pipes G G¹ into the jar H whence they are forced through the pipe G² back to the chamber A. The vapour of the anæsthetic substance is thus passed into the chamber A, and the continuous circulation of the gaseous contents of the said chamber through the jar H causes them to quickly increase in strength 30 until the animals are unconscious. The operation of the bellows F is then ceased and carbonic acid gas from the cylinder R is introduced into the chamber A until the death of the animals takes place.

35 After the death of the animals has been effected the handle L³ of the cock is turned to put the pipe G in communication with the exhaust pipe J, the passage L² leading to the aperture A³ being simultaneously opened to put the interior of the chamber A in communication with the atmosphere as illustrated in Figures 4, 5 and 6. The bellows F are again operated and the gaseous contents of the chamber A exhausted by way of the pipe E, and passing through 40 the bellows, are discharged into the atmosphere through the exhaust pipe J. The suction of the bellows causes fresh air to be drawn through the apertures A³ into the chamber A which is thus quickly cleared of the gas and fumes contained therein.

45 In a modified form of this invention the anæsthetic fumes are circulated by means of a fan rotating inside the chamber and causing a current of air to blow directly upon the anæsthetic substance which is contained in a vessel also placed within the chamber.

50 With the above described apparatus it will be seen that the chamber can easily be kept clean since the animals must always lie in the trays which are easily removed and cleansed. Further the introduction of anæsthetic is gradual and consequently unnoticed by the animals since the fumes get stronger by degrees owing to the circulation of the air contained in the chamber and the exhalations of the animals themselves.

55 Further, after the animals are unconscious their final destruction can be effected in a simple manner and by means of the pressure regulator and the gas meter no waste of gas need occur.

Finally by withdrawing the gases with the aid of the pump and the intro-

Improvements in Lethal Chambers for the Destruction of Animals.

duction of fresh air the operators are not brought in contact with the fumes and gas, the chamber being practically filled only with fresh air when opened for the removal of the bodies.

It will be understood that any known apparatus for causing the air introduced to take up the anæsthetic vapour may be employed. Also, the shape and detail 5 construction of the chamber may vary in accordance with requirements, the openings, for example, being made either at the side, top, or elsewhere as found convenient.

The shelves within the chamber may be constructed of openwork metal or of wood and known forms of adjustment for altering their height may be employed, 10 or the shelves may be dispensed with and the trays made sufficiently wide to engage the runners of the internal face of the walls of the chamber. In this case the trays will be perforated at various points to permit of the free circulation of the fumes.

Having now particularly described and ascertained the nature of our said 15 invention and in what manner the same is to be performed, we declare that what we claim is—

1. In a lethal chamber for the destruction of animals circulating the air from the chamber through or over an anæsthetic substance and returning it to the chamber substantially as described. 20

2. In a lethal chamber for the destruction of animals withdrawing the air from the chamber passing it through or over an anæsthetic substance and returning it to the chamber substantially as described.

3. In a lethal chamber for the destruction of animals withdrawing air and fumes from the chamber and simultaneously forcing a similar quantity of air and 25 fumes into the chamber substantially as described.

4. The combination with a lethal chamber for the destruction of animals of bellows F a jar H containing an anæsthetic substance and circulating pipes such as E G G¹ G² substantially as described.

5. The combination with a lethal chamber for the destruction of animals of 30 bellows F an air inlet a cock or valve and pipes such as E G J substantially as described.

6. The combination with a lethal chamber for the destruction of animals of inner openwork doors such as B and outer gas tight doors C arranged at each end of the chamber substantially as and for the purpose described. 35

7. In a lethal chamber for the destruction of animals the combination with a valve casing such as L L² connected with a chamber A A³ circulating pipes and an exhaust pipe of a valve plug L¹ perforated in such a manner that either all the circulating pipes may be put in communication with the bellows or the exhaust pipe may be put in communication with the bellows and the chamber 40 simultaneously opened to the atmosphere substantially as described.

8. The combination with a lethal chamber for the destruction of animals of a removable perforated flanged tray P P¹ P³ having grooves or passages such as P² substantially as described.

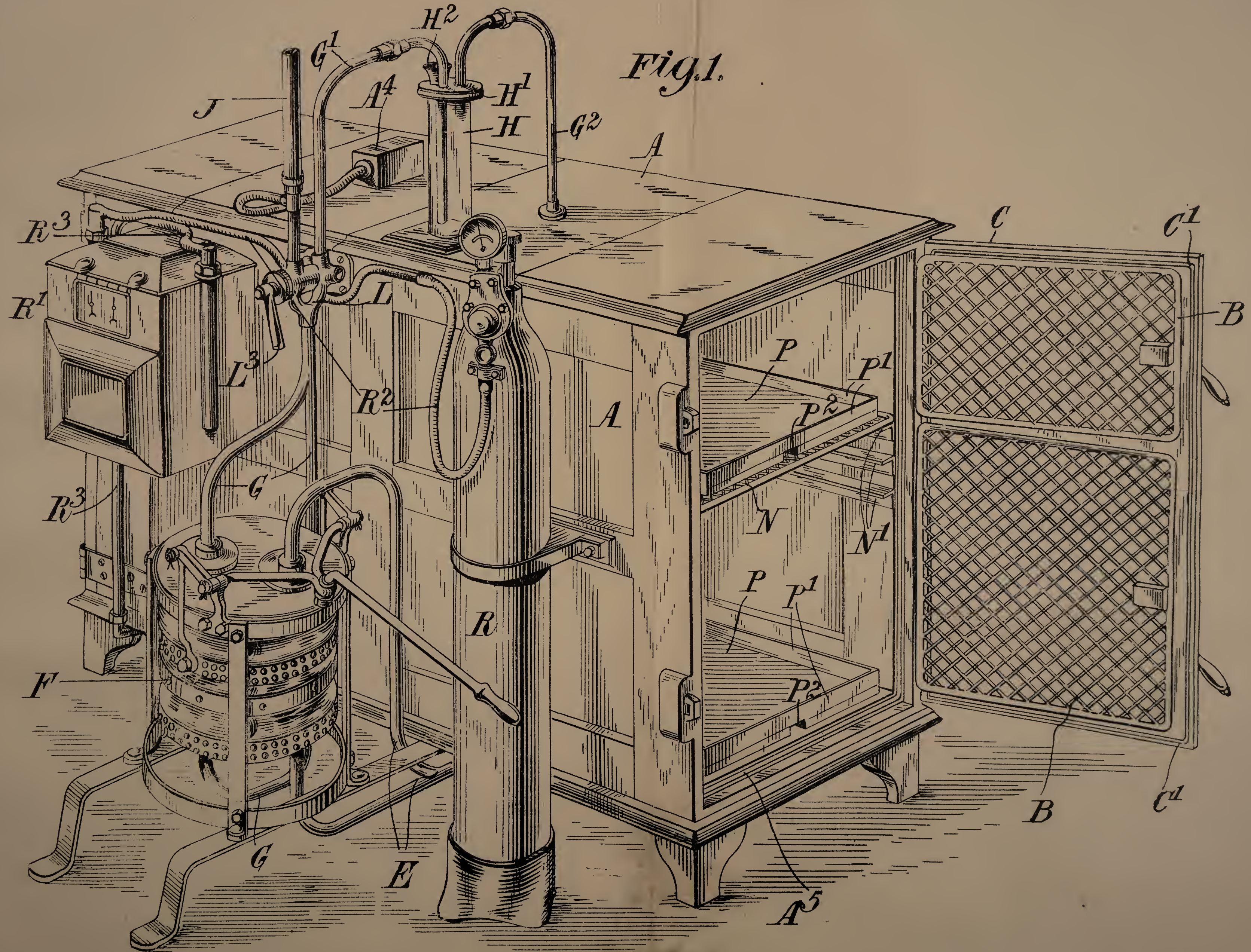
9. The complete lethal chamber for the destruction of animals substantially 45 as described or illustrated in the accompanying drawings.

Dated this 24th day of October 1904.

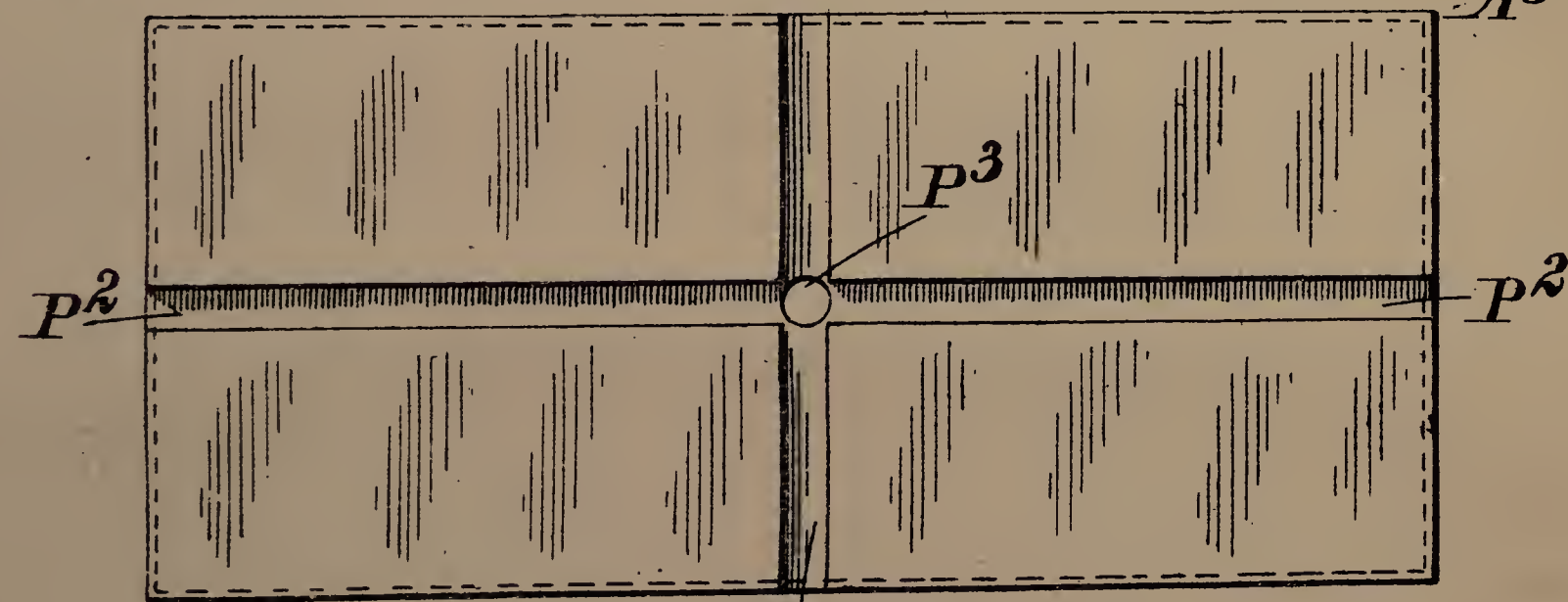
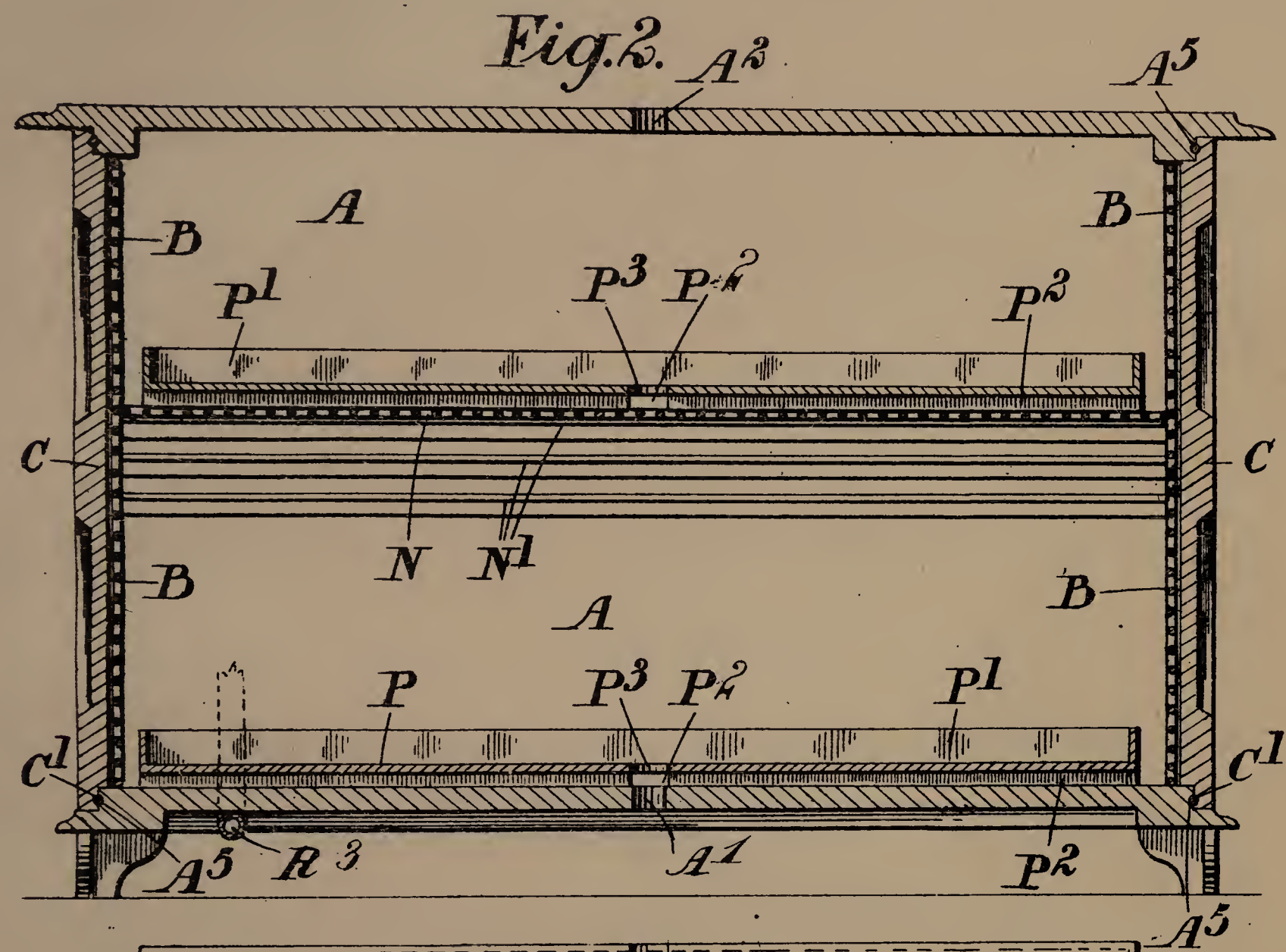
BERTRAM RICHARDSON.
J. C. HUNTING.

Boult, Wade & Kilburn, 50
Agents for the Applicants.





[This drawing is a reproduction of the Original on a reduced scale]



P² Fig. 3.

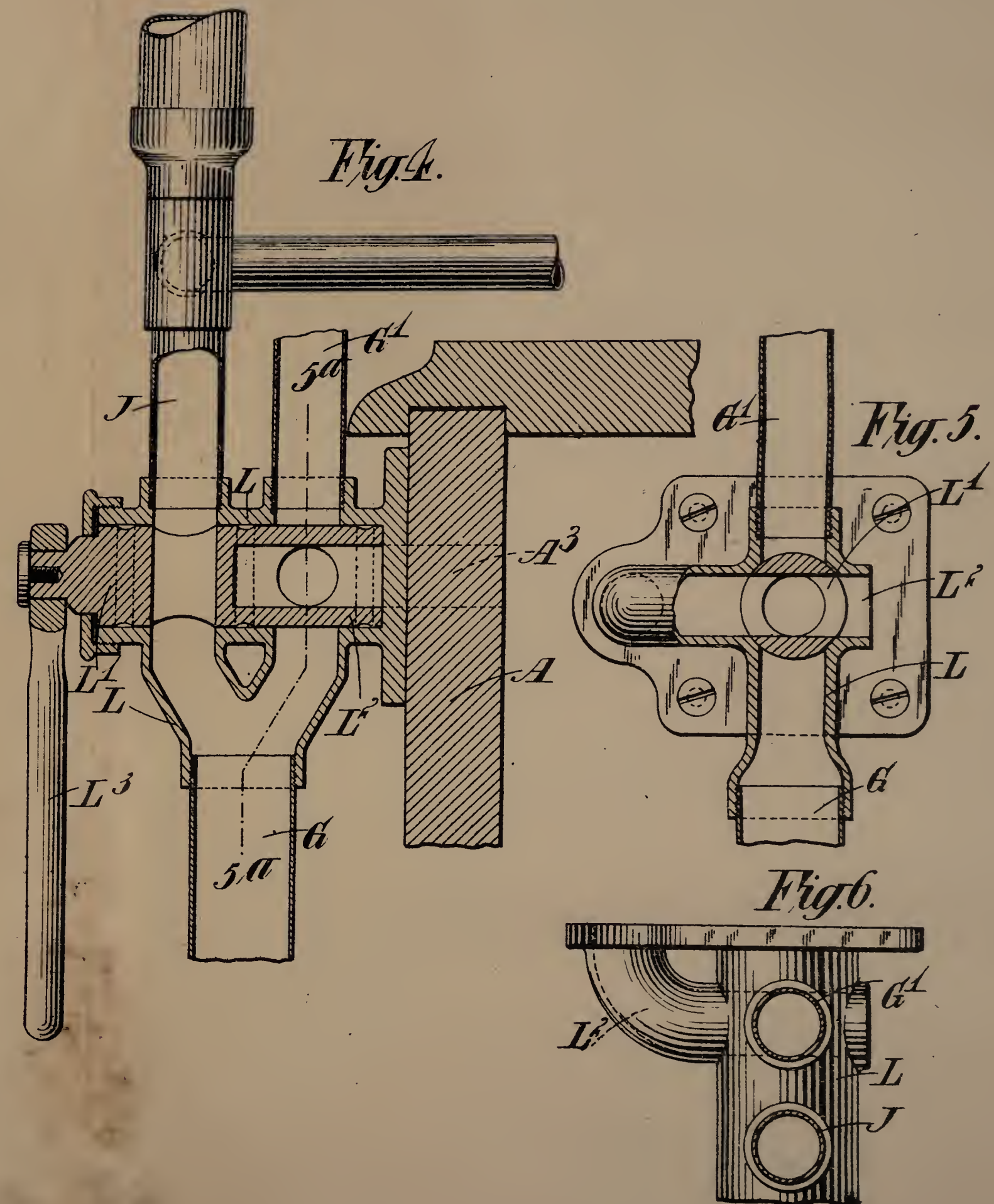


Fig. 6.

